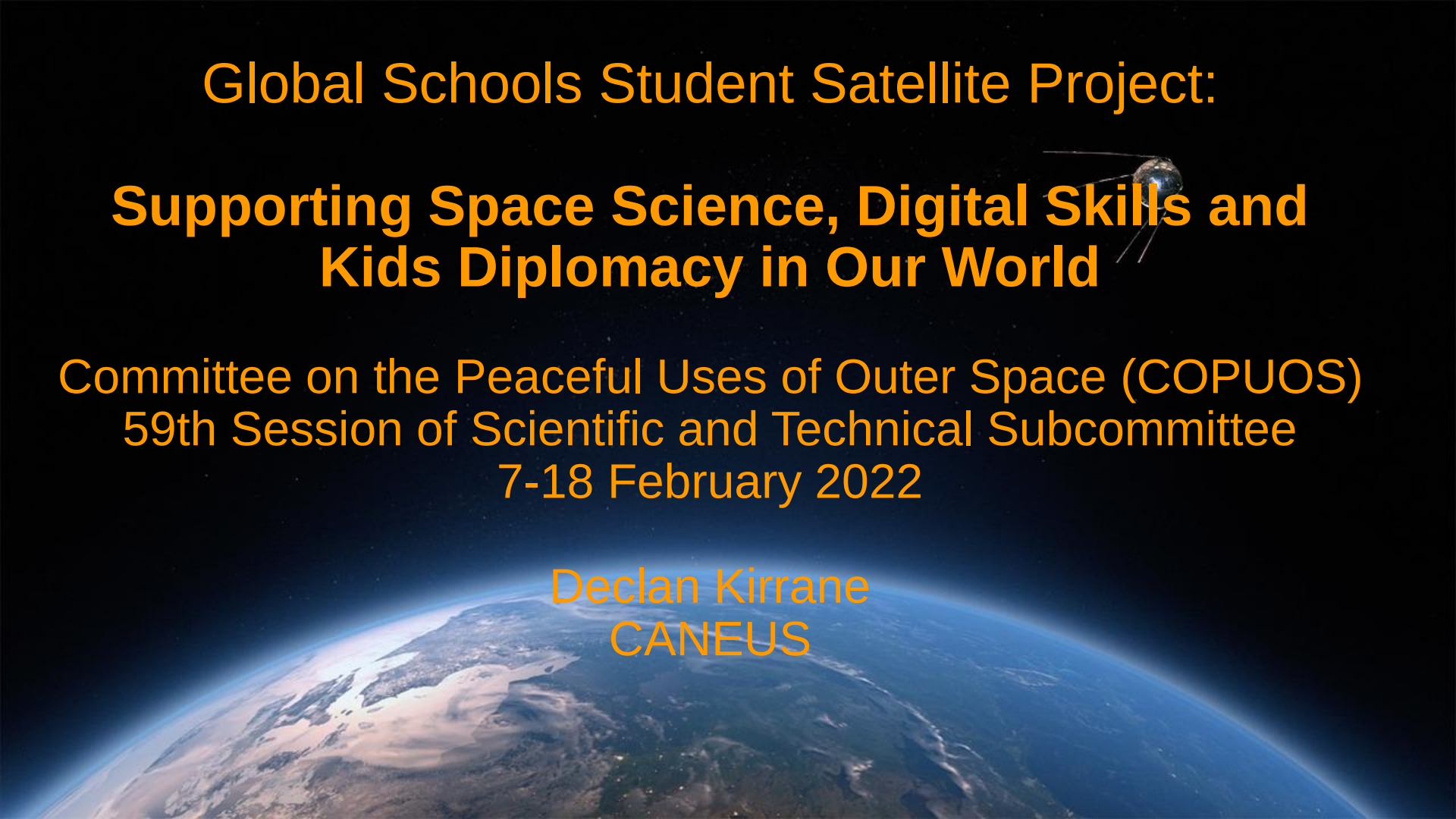


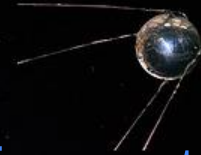


Global Schools Student Satellite Project: **Supporting Space Science, Digital Skills and Kids Diplomacy in Our World**

Committee on the Peaceful Uses of Outer Space (COPUOS)
59th Session of Scientific and Technical Subcommittee
7-18 February 2022

Declan Kirrane
CANEUS

Characteristics of the project:



- Getting involved in designing, building and launching a satellite
- 3 -year project
- Working with different schools around the world
- Combining different subjects
- Linking communities



Objectives:

1. Teach high school students about satellites and satellite operations
2. Provide a skills base on all aspects of the project including mechanics, electronics and data analysis and artificial intelligence
3. Provide input into a school curricula in certain key areas
4. Provide opportunities apart from directly working on the satellite for students to benefit from the programme, including specially designed lectures, courses and related activities
5. Provide occasions for students to meet active scientists and others working in space - related fields, such as agriculture, navigation, transport and communications



6. Help our students to understand the global industry and manufacturers providing the elements and components that comprise satellites
7. Understand the contribution of satellite navigation and earth observation for the entire society
8. Show how space-based applications and assets can support the attainment of the United Nations sustainable development goals
9. Provide opportunities for students to learn about related science, and technology and innovation careers
10. Expose children to information sources

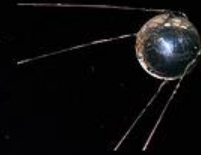


- 
- A small satellite with a spherical body and thin antennae is positioned in the upper right quadrant of the image, against the black background of space.
11. Provide an environment where students can learn coding and other practical skills
 12. Connect students through operational activities from schools around the world
 13. Help children improve their English language skills and provide opportunities for other language groups to gain exposure to languages where they have an interest
 14. Provide opportunities for teachers and other mentors to access skills, knowledge and education tools
 15. Link institutional activities, for example those of the European Commission, with high school students
 16. Assist students in understanding key global policies in particular in the area of digital transformation and the green agenda



Project stages:

- The design of the mission and the construction of the satellite: 2021/2023
- The launch of the satellite: 2023
- Operation of the mission, data collection, analysis and outputs: 2023/2024



Subjects involved:

- Technology
- ICT
- Biology
- Chemistry and physics
- Languages
- Maths
- Social science



Course 2021/2022:

★ Start with year K8:

- Introduction to the satellites.
- Environmental problems.
- Work with ESERO materials.

★ Contents:

- History and types of satellites
- Environmental problems
- Space related institutions
- Women in aerospace industry
- Meeting with specialists

Technology

Biology/ Social science

History/ Languages

Technology/ History and Languages



Course 2022/2023:

★ Start with year K9:

- Mission objective.
- Design and construction of the satellite.
- Work with ESERO materials.

★ Contents:

- Environmental problems
- Geolocation
- Applications of the satellites
- Space related institutions
- Women in aerospace industry
- Meeting with industry specialists

Biology/ Social science

Maths/ Geography

Technology/ Biology/ Chemistry and Physics

History/ Languages

Technology/ History and Languages



Course 2023/2024:

★ Start with year K10/11:

- Data analysis of the satellite.

★ Contents:

- Code knowledge and programming
- Environmental problems
- Geolocation
- Applications of the satellites data
- Space related institutions
- Women in aerospace industry
- Meeting with industry specialists

ICT

Biology/ Social science

Maths/ Geography

Technology/ Biology/ Chemistry and Physics

History/ Languages

Technology/ History and Languages



Sustainable Development Goals in our project:

- ★ G4: Quality Education.
- ★ G5: Gender equality.
- ★ G8: Decent work and economic growth.
- ★ G9: Industry, innovation and infrastructure.
- ★ G10: Reduce inequality.
- ★ G13: Climate action.
- ★ G14: Life below water.
- ★ G15: Life on land.



MISSION OPERATION – The Uniqueness



Giving students and their teachers (live)
access to a satellite



Co-developing curriculum supports



Linking communities of users across the
globe



MISSION ETHOS – Co-Creation



What are the problems you want to solve?

Why are these important to you, your family, your friends ?

How can satellites help to solve these problems?

What are the recurring problems identified by schools?



MISSION ACCESSIBILITY – One Satellite (in space)

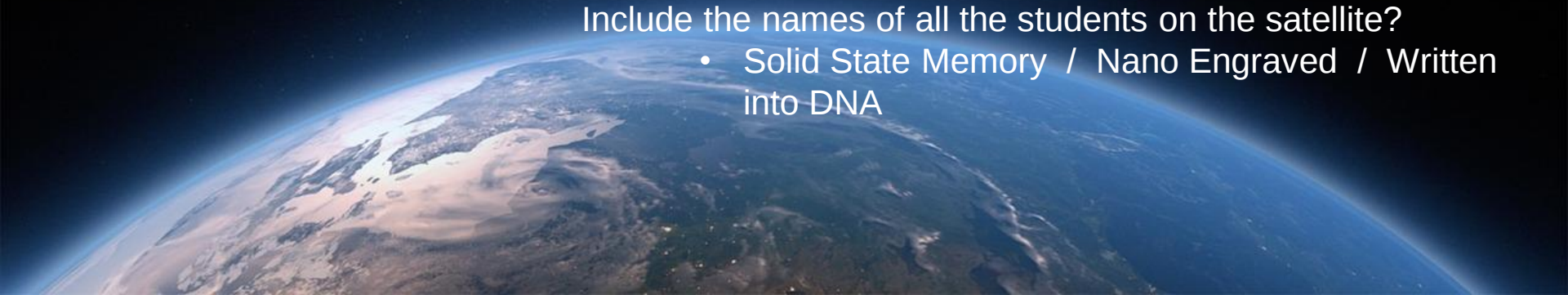
Capability to build a replica “in the classroom”



- Share concept plans amongst schools, developed by schools themselves
- The prototype complexity follows the educational level and resource availability
 - Drawing
 - Cardboard box (showing solar cells, camera, thrusters)
 - Prototype capable of taking pictures and transmitting them wirelessly (using microbits)

Include the names of all the students on the satellite?

- Solid State Memory / Nano Engraved / Written into DNA



MISSION EXPERIMENTS – The Data



Mode 1: Data available via a web portal

Complexity of data linked to educational level → pre-processing

Mode 2: Download data direct from satellite

Low data volume, omnidirectional ground-based receiver

Infrequent passes overhead makes it special



MISSION EXPLORE – What have you found?!!



Opportunities for schools to discuss what they found in the data or why its interesting or

Images can be requested by a school It becomes THEIR image

Building and Maintaining Global Connections



A satellite with a spherical body and four thin, radiating antennas is positioned in the upper right quadrant of the image. Below it, the curved horizon of the Earth is visible, showing a blue atmosphere and a detailed view of a coastal region with land and water. The background is the deep black of space, filled with numerous small, distant stars.

<https://schoolssatelliteproject.com/>